

SANITARY SEWER
STANDARD DETAILS

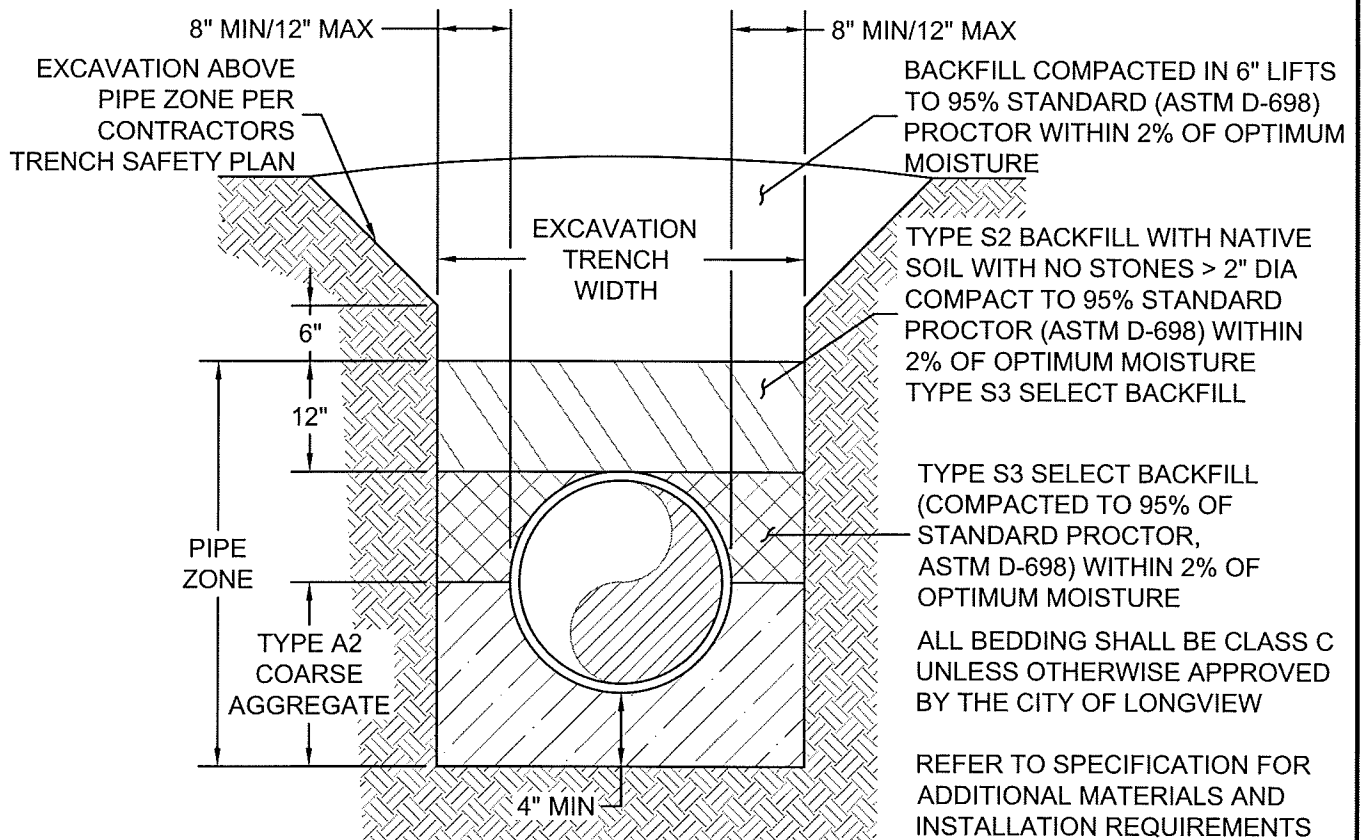
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SANITARY SEWER
STANDARD DETAILS

PREFACE HERE

SANITARY SEWER DETAILS

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TYPE A2	ANGULAR 3/4" TO 1" CRUSHED ROCK OR NATURAL STONE MEETING THE REQUIREMENTS OF ATM C-33 No. 57. EMBEDMENT MATERIAL SHALL BE CLEAN, WASHED, SOUND, DURABLE, AND WELL GRADED.
TYPE S2	GRADED FREE OF LUMPS LARGER THAN 3", ROCKS LARGER THAN 2", EXCESSIVE SILTS, AND DEBRIS. DO NOT USE SOIL CONTAINING BRUSH, ROOTS, OR SIMILAR ORGANIC MATTER. CONFORMING TO ASTM D2487 CLASS II OR CLASS III SOILS WITH A LIQUID LIMIT LESS THAN 40, AND THE PLASTICITY INDEX LESS THAN 20, BUT GREATER THAN 4.
TYPE S3	CLAYEY SAND SOILS FREE FROM ORGANIC MATTER WITH NO LUMPS LARGER THAN 1", NO ROCKS LARGER THAN 1/2", NOR EXCESSIVE SILTS. DO NOT USE SOILS CONTAINING BRUSH, ROOTS, SOD, OR OTHER ORGANIC MATERIALS. SELECT FILL SHALL CONFORM TO ASTM D2487 CLASS II OR CLASS III AND SHALL HAVE A LIQUID LIMIT LESS THAN 30 WITH PLASTICITY INDEX LESS THAN 15, BUT GREATER THAN 4.

SANITARY SEWER PIPE MATERIAL NOTES:

A. PIPE:

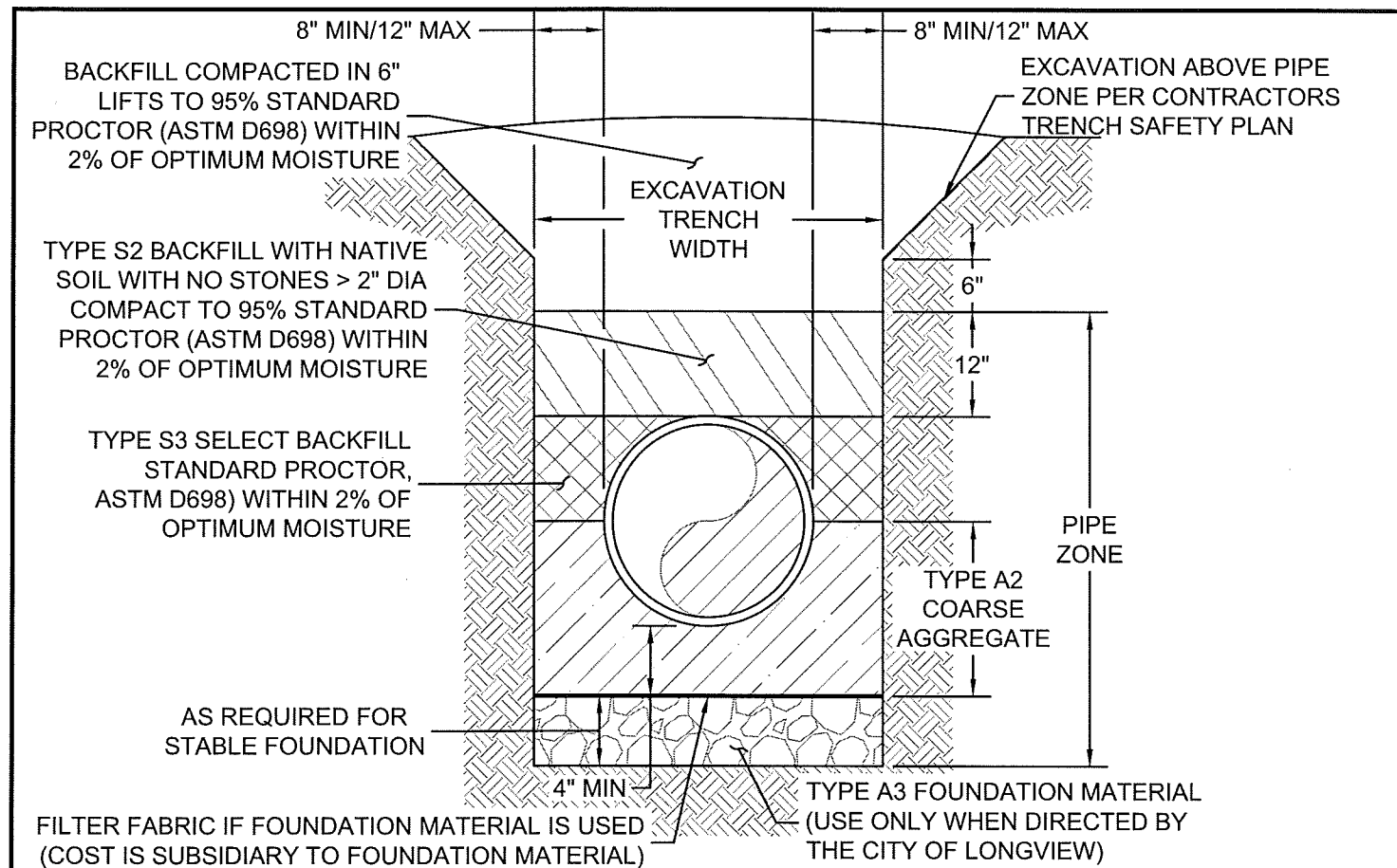
1. POLYVINYL CHLORIDE PIPE (PVC)

- PVC PIPE SHALL BE IN ACCORDANCE WITH ASTM D-3034 WITH INTEGRAL WALL BALL AND SPIGOT JOINTS.
- PVC PIPE SHALL BE MANUFACTURED FROM CLEAN, VIRGIN, NSF APPROVED PVC COMPOUND MEETING THE REQUIREMENTS OF CELL CLASS 12454-B AS DEFINED BY STM D-1784.
- PIPES SHALL BE PRODUCED WITH A WALL THICKNESS CORRESPONDING TO DIMENSION RATIO SDR-26, WITH A PIPE STIFFNESS VALVE OF 115 PSI WHEN TESTED IN ACCORDANCE WITH ASTM D-2412.
- PVC PIPE AND FITTINGS SHALL BE NEW AND SUPPLIED FROM APPROVED MATERIALS AS LISTED ON THE CITY OF LONGVIEW APPROVED PRODUCTS LIST. NO OTHER MATERIALS ARE ACCEPTABLE.

2. DUCTILE IRON (DI) PIPE:

- DUCTILE IRON PIPE SHALL BE IN ACCORDANCE WITH ANSI/AWWA C151/A21.51 WITH THICKNESS AS DETERMINED BY ANSI/AWWA C150/A21.50.
- ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE LINED WITH (PROTECTO 401) PER ANSI/AWWA C104/A21.4 AND HAVE A BITUMINOUS COATED EXTERIOR ACCORDING TO ANSI/AWWA C151/A21.51 OR C115/A21.15.
- PRESSURE CLASS 150 SHALL BE USED UNLESS OTHERWISE NOTED.
- DUCTILE IRON PIPE AND FITTINGS SHALL BE NEW AND SUPPLIED FROM APPROVED MATERIALS AS LISTED ON THE CITY OF LONGVIEW APPROVED UTILITY PRODUCTS LIST. NO OTHER MATERIALS ARE ACCEPTABLE.

	SANITARY SEWER	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	SANITARY SEWER LINE INSTALLATION CLASS C EMBEDMENT
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TYPE A2	ANGULAR 3/4" TO 1" CRUSHED ROCK OR NATURAL STONE MEETING THE REQUIREMENTS OF ATM C-33 NO. 57. EMBEDMENT MATERIAL SHALL BE CLEAN, WASHED, SOUND, DURABLE, AND WELL GRADED.
TYPE A3	COARSE STONE OR CRUSHED GRAVEL. FOUNDATION MATERIAL SHALL BE PIT RUN ANGULAR CRUSHED, NATURAL WASHED STONE FREE OF SHALE, CLAY, FRIABLE MATERIAL AND DEBRIS; WELL GRADED BETWEEN 1" AND 3" IN SIZE, WITH A MINIMUM OF 90% RETAINED ON A 1" SIEVE.
TYPE S2	GRADED FREE OF LUMPS LARGER THAN 3", ROCKS LARGER THAN 2", EXCESSIVE SILTS, AND DEBRIS. DO NOT USE SOIL CONTAINING BRUSH, ROOTS, OR SIMILAR ORGANIC MATTER. CONFORMING TO ASTM D2487 CLASS II OR CLASS III SOILS WITH A LIQUID LIMIT LESS THAN 40, AND THE PLASTICITY INDEX LESS THAN 20, BUT GREATER THAN 4.
TYPE S3	CLAYEY SAND SOILS FREE FROM ORGANIC MATTER WITH NO LUMPS LARGER THAN 1", NO ROCKS LARGER THAN 1/2", NOR EXCESSIVE SILTS. DO NOT USE SOILS CONTAINING BRUSH, ROOTS, SOD, OR OTHER ORGANIC MATERIALS. SELECT FILL SHALL CONFORM TO ASTM D2487 CLASS II OR CLASS III AND SHALL HAVE A LIQUID LIMIT LESS THAN 30 WITH PLASTICITY INDEX LESS THAN 15, BUT GREATER THAN 4.

SANITARY SEWER PIPE MATERIAL NOTES:	
1. POLYVINYL CHLORIDE PIPE (PVC)	
a.	PVC PIPE SHALL BE IN ACCORDANCE WITH ASTM D-3034 WITH INTEGRAL WALL BALL AND SPIGOT JOINTS.
b.	PVC PIPE SHALL BE MANUFACTURED FROM CLEAN, VIRGIN, NSF APPROVED PVC COMPOUND MEETING THE REQUIREMENTS OF CELL CLASS 12454-B AS DEFINED BY STM D-1784.
c.	PIPES SHALL BE PRODUCED WITH A WALL THICKNESS CORRESPONDING TO DIMENSION RATIO SDR-26, WITH A PIPE STIFFNESS VALUE OF 115 PSI WHEN TESTED IN ACCORDANCE WITH ASTM D-2412.
2. DUCTILE IRON (DI) PIPE:	
a.	DUCTILE IRON PIPE SHALL BE IN ACCORDANCE WITH ANSI/AWWA C151/A21.51 WITH THICKNESS AS DETERMINED BY ANSI/AWWA C150/A21.50.
b.	ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE (PROTECTO 401) PER ANSI/AWWA C104/A21.4 AND HAVE A BITUMINOUS COATED EXTERIOR ACCORDING TO ANSI/AWWA C151/A21.51 OR C115/A21.15.
c.	PRESSURE CLASS 150 SHALL BE USED UNLESS OTHERWISE NOTED.
d.	DUCTILE IRON PIPE AND FITTINGS SHALL BE NEW AND SUPPLIED FROM VENDERS INCLUDED ON THE LATEST VERSION OF THE CITY OF LONGVIEW'S APPROVED UTILITY PRODUCTS LIST. NO OTHER SUPPLIERS SHALL BE ACCEPTED.

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CITY APPROVED PLASTIC WATER METER BOX TO
BE INSTALLED AT GRADE FOR NON-PAVED AREAS
BOX SHALL BE CITY APPROVED TRAFFIC RATED
CDR BOX IN PAVED AREAS

6" UNIVERSAL TEMPORARY PLUG

LETTERING ON ALL NEW PIPES
ARE TO BE POINTED UPWARD

6" SDR 26 SEWER PIPE

WYE TO BE LOCATED WHERE
TOP OF CLEANOUT PIPE WILL
TOUCH PROPERTY LINE
ANGLE OF CLEANOUT PIPE MUST
MAINTAIN 45° ANGLE FROM
EXISTING PIPE

6" SDR 26 WYE

6" 45° BEND

1'
(MIN)

SEWER MAIN
SIZE x 6" WYE

EXISTING OR
PROPOSED
SEWER MAIN

FLEXIBLE COUPLING
WITH SHEAR RING
REQUIRED IF
EXISTING PIPE IS
NOT SDR 26 (TYP)

SEWER SERVICE LINE (DIAMETER
AND MATERIAL AS APPROVED BY
THE CITY OF LONGVIEW)

ECCENTRIC REDUCER FOR SERVICES
LINES LESS THAN 6" DIAMETER

CONCRETE BLOCKING OR SACKRETE REQUIRED
BELOW JOINT AT WYE AND EXISTING PIPE
BLOCKING OR SACKRETE TO EXTEND TO
UNDISTURBED SOIL

UNDISTURBED SOIL

EXISTING ROW
PROPERTY LINE

NOTES:

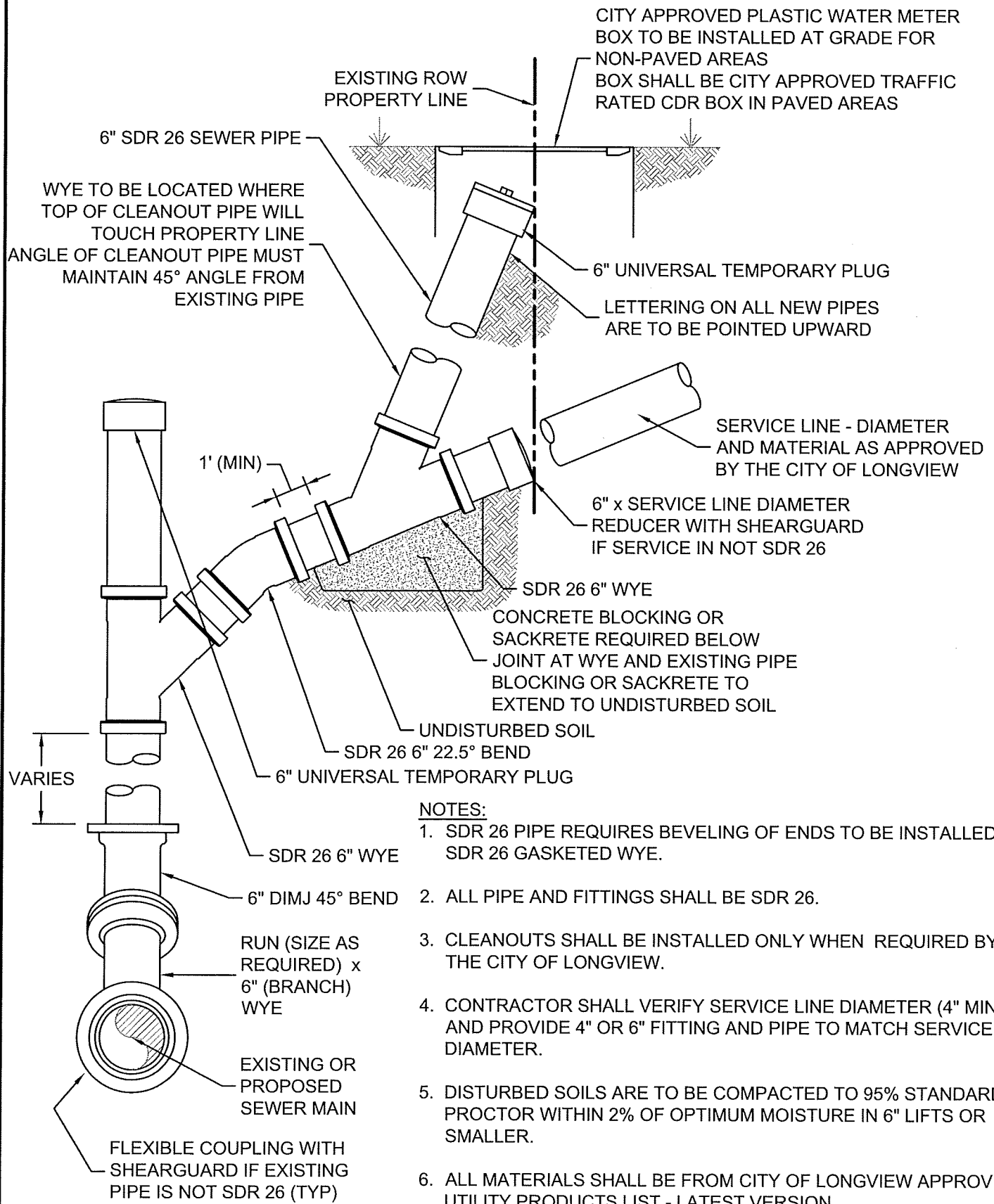
1. BEVEL OF ENDS OF PIPE PRIOR TO INSERTING IN FITTINGS (TYP).
2. ALL PIPE AND FITTINGS SHALL BE SDR 26.
3. CLEANOUTS SHALL BE INSTALLED AS REQUIRED BY THE CITY OF LONGVIEW.
4. SERVICE CONNECTION AT MAIN AND CLEAN OUT SHALL BE MINIMUM 6" DIAMETER FOR 4" SERVICES. FOR SERVICE LINES LARGER THAN 4" DIAMETER, SERVICE CONNECTION AT THE MAIN SHALL BE MADE AS A MANHOLE CONSTRUCTED AT THE MAIN.
5. DISTURBED SOILS SHALL BE COMPACTED TO 95% STANDARD PROCTOR WITHIN 2% OF OPTIMUM MOISTURE IN 6" LIFTS OR SMALLER.
6. PROVIDE AND INSTALL ECCENTRIC REDUCER AT BASE OF CLEANOUT RISER FOR EXISTING SERVICES LESS THAN 6" DIAMETER AND INSTALL 4" WYE IN SERVICE LINE.
7. ALL MATERIALS SHALL BE FROM THE LATEST VERSION OF THE CITY OF LONGVIEW APPROVED UTILITY PRODUCTS LISTS.

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SANITARY SEWER SERVICE

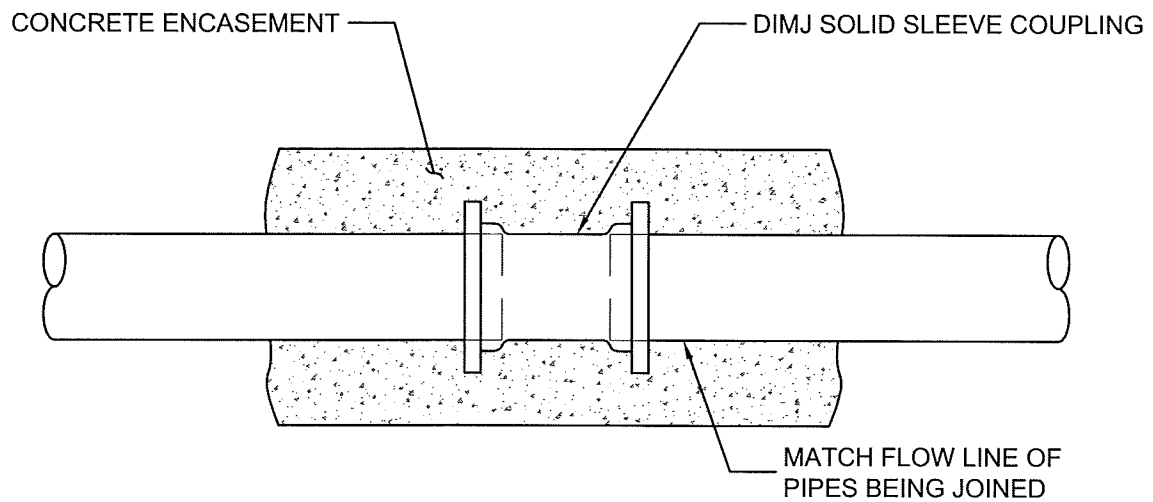


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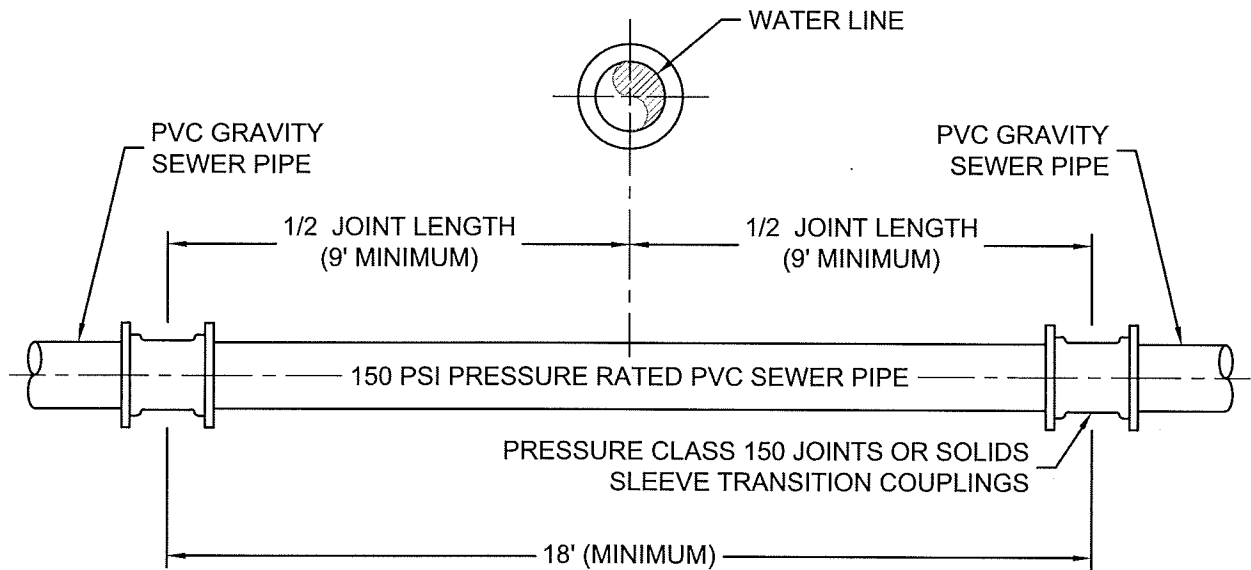
SANITARY SEWER SERVICE
FOR MAINS
7' AND DEEPER



NOTES:

1. USE TRANSITION GASKETS BETWEEN PIPE TYPES WHEN POSSIBLE.
2. BLOCK PIPES CAREFULLY PRIOR TO CONCRETE ENCASEMENT TO ENSURE ACCURATE PIPE ALIGNMENT.
3. COMPLETED JOINT MUST BE ABLE TO PASS MANDREL TESTING.

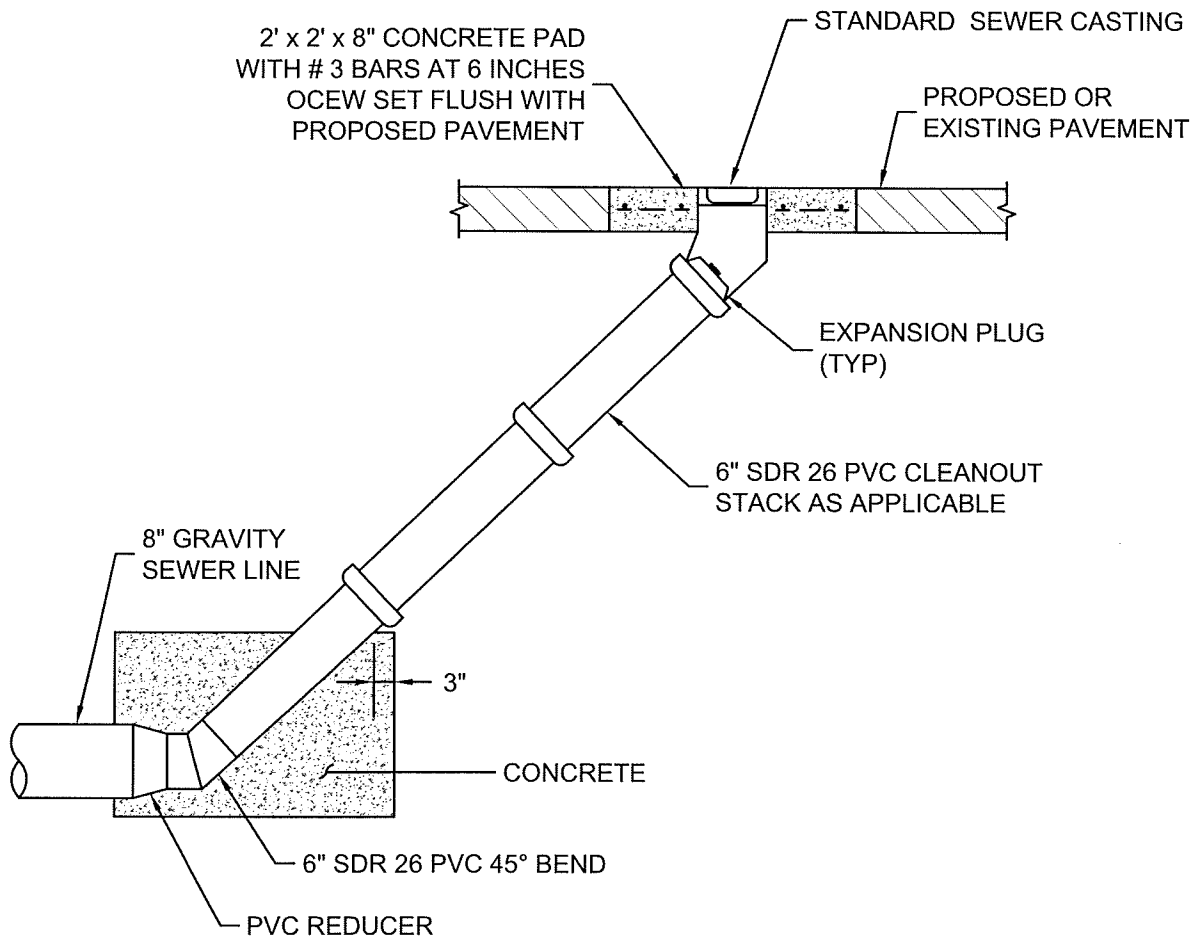
	SANITARY SEWER LATEST REVISION: 3/21/2018	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	SEWER LINE TRANSITION COUPLING
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NOTES:

1. FOR NEW WATER/SEWER INSTALLATION, THE WATERLINE SHALL BE LOCATED ABOVE THE SEWER LINE.
2. CROSSING PIPES WITHIN 9 FEET, WHERE THE COLLECTION PIPE IS BELOW THE WATERLINE, CONSTRUCT THE COLLECTION LINE USING THE FOLLOWING:
 - a. 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG WITH JOINT CENTERED ON THE CROSSING.
 - b. AT LEAST 6" OF VERTICAL SEPARATION.
 - c. TERMINATING JOINTS DESIGNED TO SEAL AT ATMOSPHERIC PRESSURE.
3. FOR NEW WATERLINE CROSSING EXISTING SEWER, REMOVE EXISTING SEWER LINE AND REPLACE WITH A FULL JOINT OF 150 PSI OR GREATER PRESSURE RATED PVC PIPE. CENTER JOINT AT WATERLINE CROSSING. INSTALL PRESSURE RATED TRANSITIONS.

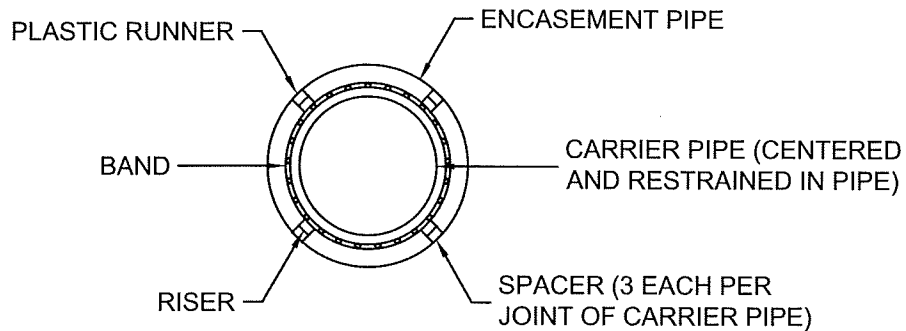
	SANITARY SEWER LATEST REVISION: 3/21/2018	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	SEWER - WATER CROSSING
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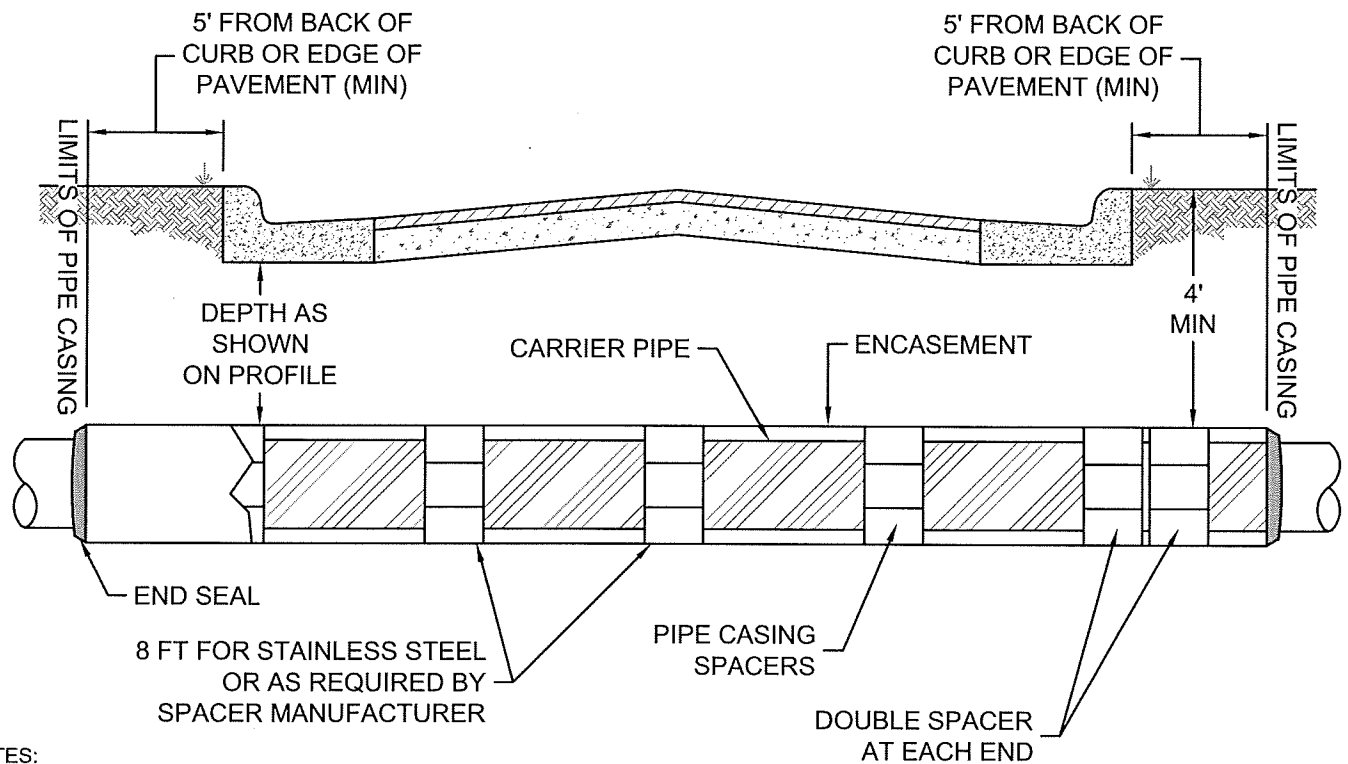
NOTE:

1. ALL PIPE AND FITTINGS SHALL BE SDR 26 PVC UNLESS OTHERWISE NOTED.
2. AT UNPAVED AREAS, TERMINATE IN CITY OF LONGVIEW APPROVED PLASTIC METER BOX. INSTALL LEVEL WITH ADJACENT FINISHED GRADE.
3. CONCRETE PAD SHALL BE A MINIMUM OF 8" THICK OR THICKNESS OF CONCRETE PAVEMENT.
4. IN PAVED AREAS, BACKFILL CLEANOUT USING SELECT FILL (SOIL TYPE S3) OR CITY OF LONGVIEW APPROVED EQUAL.
5. COMPACT SUBGRADE TO 95% OF STANDARD PROCTOR WITHIN 2% OF OPTIMUM MOISTURE IN 6" LIFTS.

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PIPE CASING SPACER



NOTES:

1. FOR ADDITIONAL INFORMATION, REFER TO PIPE CASING DETAIL NOTES AND SPECIFICATIONS.
2. CASING SPACERS SHALL BE STAINLESS STEEL.
3. CASING SPACERS SHALL CENTER AND RESTRAIN CARRIER PIPE IN CASING.
4. CASING END SEALS SHALL BE "PULLON" TYPE, "WRAP AROUND" END SEALS ARE PROHIBITED.
5. FOR NEW ROAD CONSTRUCTION, INSTALL CASING BY OPEN CUT PRIOR TO ROAD CONSTRUCTION. INSTALL CLASS C PIPE EMBEDMENT AND BACKFILL CASING TRENCH PER CLASS C EMBEDMENT DETAIL.
6. FOR CONSTRUCTION AT EXISTING ROADS, INSTALL BE DRY BORE UNLESS APPROVED OTHERWISE BY THE CITY OF LONGVIEW.
7. LATERAL AND VERTICAL VARIATION IN THE FINAL POSITION OF THE PIPE CASING OR TUNNEL LINER FROM THE LINE AND GRADE ESTABLISHED BY THE CITY OF LONGVIEW SHALL BE ACCEPTABLE ONLY TO THE EXTENT THAT IT DOES NOT IMPACT THE LINE AND GRADE OF THE CARRIER PIPE. IF IN THE CITY OF LONGVIEW'S OPINION, THE COMPLETED INSTALLATION DOES NOT MEET THE INTENT OF THE DESIGN, THE WORK SHALL NOT BE CONSIDERED ACCEPTABLE AND SHALL BE REPLACED.

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PIPE CASING
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PIPE CASING DETAIL NOTES:

MATERIALS:

A. STEEL PIPE:

1. STEEL CASING PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 35,000 PSI.
2. STEEL CASING PIPE TO BE INSTALLED WITH UNION PACIFIC RAILROAD RIGHT-OF-WAY SHALL BE COATED WITH COAL TAR EPOXY MEETING THE REQUIREMENTS OF CORP OF ENGINEERS SPECIFICATIONS C-200A. COAL TAR EPOXY SHALL BE INSTALLED IN TWO COATS FOR A TOTAL DFT OF 16 MILS. WELDED JOINTS SHALL BE FIELD COATED. ALL OTHER CASING INSTALLED OUTSIDE OF UNION PACIFIC RAILROAD RIGHT-OF-WAY MAY BE UNCOATED.
3. CASING SHALL MEET ASTM A-36, ASTM A-570, ASTM A-135, ASTM A-139, OR CITY OF LONGVIEW APPROVED EQUAL.
4. PIPE JOINTS SHALL BE WELDED IN ACCORDANCE WITH AWWA C-206.
5. UNLESS SPECIFIED OTHERWISE, THE MINIMUM WALL THICKNESS OF STEEL CASING PIPE SHALL BE AS FOLLOWS:

<u>CASING DIAMETER</u>	<u>WALL THICKNESS</u>
<12"	0.25"
13" - 18"	0.25"
19" - 22"	0.25"
23" - 28"	0.4375"
29" - 34"	0.50"
35" - 42"	0.5625"
43" - 48"	0.625"

B. CASING INSULATORS:

1. USE CASING INSULATORS FOR ALL TYPES OF CARRIER PIPE.
2. INSULATORS SHALL CONSIST OF PRE-MANUFACTURED STEEL BANDS WITH PLASTIC LINING AND PLASTIC RUNNERS.
3. INSULATORS SHALL FIT SNUG OVER THE CARRIER PIPE AND POSITION THE CARRIER PIPE APPROXIMATELY IN THE CENTER OF THE CASING PIPE, TO PROVIDE ADEQUATE CLEARANCE BETWEEN THE CARRIER PIPE BELL AND THE CASING PIPE.
4. FASTENERS FOR INSULATORS SHALL BE STAINLESS STEEL.
5. INSULATORS SHALL BE AS MANUFACTURED BY ADVANCE PRODUCT AND SYSTEMS, INC., MODEL #SSI, OR CITY OF LONGVIEW APPROVED EQUAL.

C. END SEALS:

1. ALL CASINGS SHALL BE SEALED.
2. SEALS SHALL BE ONE-PIECE RUBBER WITH STAINLESS STEEL BANDS.
3. END SEALS SHALL BE MOLDED TO FIT THE CASING PIPE AND CARRIER PIPE.
4. ADVANCED PRODUCT AND SYSTEMS, MODEL #AC OR CITY OF LONGVIEW APPROVED EQUAL.

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PIPE CASING
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CROSSINGS INSTALLED BY BORING NOTES:

A. PERFORM THE BORING FROM THE LOW OR DOWNSTREAM END UNLESS SPECIFIED OTHERWISE.

1. THE CASING BORE SHALL BE DONE BY AUGER TYPE BORING METHOD. THE CASING BORE SHALL NOT BE DONE BY DIRECTIONAL DRILLING UNLESS APPROVED BY THE CITY OF LONGVIEW PRIOR TO BIDDING.
2. PLACE EXCAVATED MATERIAL NEAR THE TOP OF THE WORKING PIT AND DISPOSE OF MATERIAL AS REQUIRED.
3. JETTING SHALL NOT BE PERMITTED.

B. IN UNCONSOLIDATED SOIL FORMATIONS, A GEL-FORMING COLLOIDAL DRILLING FLUID CONSISTING OF AT LEAST 10% OF HIGH GRADE CAREFULLY PROCESSED BENTONITE MAY BE USED TO CONSOLIDATE CUTTING OF THE BIT, SEAL THE WALLS OF THE HOLE, AND FURNISH LUBRICATION FOR SUBSEQUENT REMOVAL OF CUTTING AND INSTALLATION OF THE PIPE IMMEDIATELY THEREAFTER.

C. IN LOCATIONS WHERE THE SOIL FORMATION IS OTHER THAN CONSOLIDATED ROCK, INSERT THE CASING PIPE SIMULTANEOUSLY WITH THE BORING OPERATION.

1. THIS REQUIREMENT APPLIES TO ALL BORED HOLES OF 18" OR GREATER IN DIAMETER.
2. FOR SMALLER DIAMETER BORED HOLES, IT IS DESIRABLE THAT THE CASING BE INSTALLED AS THE BORING PROGRESSES, BUT BECAUSE OF DIFFERENCES IN SOIL FORMATIONS, THE TIME FOR INSERTING THE CASING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
3. IN THE EVENT THAT CAVING SAND OR WATER BEARING MATERIALS ARE ENCOUNTERED, INSERT THE CASING PIPE SIMULTANEOUSLY WITH THE BORING OPERATION REGARDLESS OF THE DIAMETER OF THE BORED HOLE.
4. IN ALL CASES, THE SECURITY AND INTEGRITY OF THE ROADWAY IS THE PRIMARY CONCERN.
5. THE CONTRACTOR SHALL BE HELD FULLY RESPONSIBLE FOR CONTINUED INTEGRITY OF THE STRUCTURE OF THE ROADWAY BEING CROSSED, WHETHER OR NOT A CASING PIPE IS INSERTED SIMULTANEOUSLY WITH THE BORING OPERATION.

CROSSING INSTALLED BY TUNNELING AND JACKING:

A. JACK THE PIPE FROM THE LOW OR DOWNSTREAM END, UNLESS SPECIFIED OTHERWISE.

1. PROVIDE HEAVY-DUTY JACKS SUITABLE FOR FORCING THE PIPE THROUGH THE EMBANKMENT.
2. IN OPERATING JACKS, APPLY EVEN PRESSURE TO THE JACKS USED.
3. PROVIDE A SUITABLE JACKING HEAD AND BRACING BETWEEN JACKS SO THAT PRESSURE WILL BE APPLIED AT THE PIPE IN UNIFORMLY AROUND THE RIND OF THE PIPE.
4. PROVIDE A SUITABLE JACKING FRAME OR BACKSTOP.
5. SET THE PIPE TO BE JACKED ON GUIDES, PROPERLY BRACED TOGETHER, TO SUPPORT THE SECTION OF THE PIPE AND TO DIRECT IT IN THE PROPER LINE AND GRADE.
6. PLACE THE WHOLE JACKING ASSEMBLY SO AS TO LINE UP WITH THE DIRECTION AND GRADE OF THE PIPE.

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7. IN GENERAL, EXCAVATE EMBANKMENT MATERIAL JUST AHEAD OF THE PIPE AND MATERIAL REMOVED THROUGH THE PIPE.

8. FORCE THE PIPE THROUGH THE EMBANKMENT WITH JACKS INTO THE SPACE PROVIDED.

B. THE EXCAVATION FOR THE UNDERSIDE OF THE PIPE, FOR AL LEAST 1/3 OF THE CIRCUMFERENCE OF THE PIPE, SHALL CONFORM TO THE CONTOUR AND GRADE OF THE PIPE.

1. PROVIDE A CLEARANCE OF NOT MORE THAN 2" FOR THE UPPER HALF OF THE PIPE.

2. THIS CLEARANCE SHALL BE TAPERED OFF TO ZERO AT THE POINT WHERE EXCAVATION CONFORMS TO THE CONTOUR OF THE PIPE.

3. EXTEND THE DISTANCE OF THE EXCAVATION BEYOND THE END OF THE PIPE DEPENDING ON THE CHARACTER OF THE MATERIAL, BUT DO NOT EXCEED 2' IN ANY CASE.

4. DECREASE THE DISTANCE IF THE CHARACTER OF THE MATERIAL BEING EXCAVATED MAKES IT DESIRABLE TO KEEP THE ADVANCE EXCAVATION CLOSER TO THE END OF THE PIPE.

C. IF DESIRED, USE A CUTTING EDGE OF STEEL PLATE AROUND THE HEAD END OF THE PIPE EXTENDING A SHORT DISTANCE BEYOND THE END OF THE PIPE WITH INSIDE ANGLES OR LUGS TO KEEP CUTTING EDGE FROM SLIPPING BACK ONTO PIPE.

D. WHEN JACKING OF PIPE HAS BEGUN, CARRY ON THE OPERATION WITHOUT INTERRUPTION TO PREVENT THE PIPE FROM BECOMING FIRMLY SET IN THE EMBANKMENT.

1. REMOVE AND REPLACE ANY PIPE DAMAGED IN THE JACKING OPERATIONS.

2. THE CONTRACTOR SHALL ABSORB THE ENTIRE EXPENSE.

CROSSING WITH CASING INSTALLED BY OPEN CUT:

A. THIS ARTICLE COVERS THE REQUIREMENTS FOR THE CONSTRUCTION OF CROSSING WHERE PIPE CASING IS REQUIRED FOR INSTALLATION BY THE OPEN CUT METHOD.

B. EXCAVATION, BACKFILL, AND EMBANKMENT OF CASING PIPE SHALL BE AS SPECIFIED.

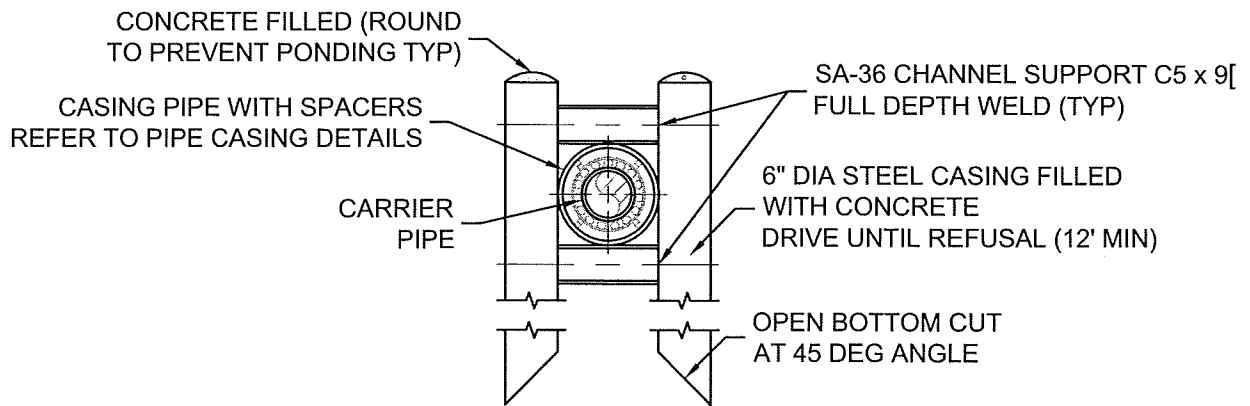
C. CASING SHALL BE BEDDED IN GRAVEL MATERIAL TO THE SPRINGLINE OF THE CASING.

D. CONTRACTOR SHALL BACKFILL WITH SELECT FILL MATERIAL COMPACTED IN 8-INCH LIFTS.

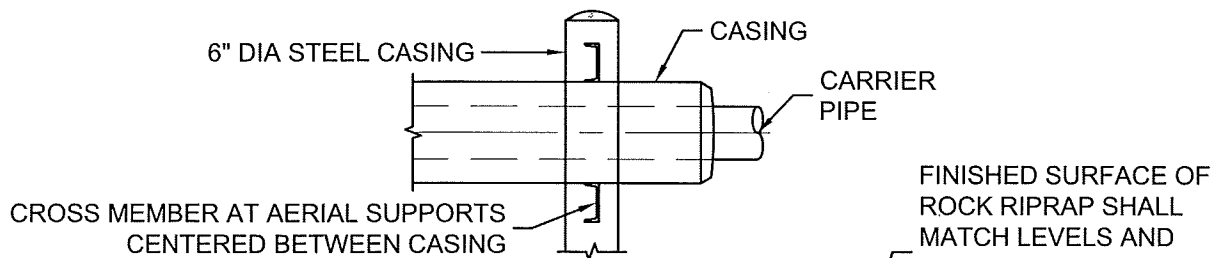
E. CONTRACTOR SHALL COMPLETE THE BACKFILL AND REPAIR THE PAVEMENT SECTION AS SHOWN.

F. IF SETTLEMENT OCCURS, THE PAVEMENTS SHALL BE REMOVED AND THE TRENCH RECOMPACTED AS THE CONTRACTOR'S EXPENSE.

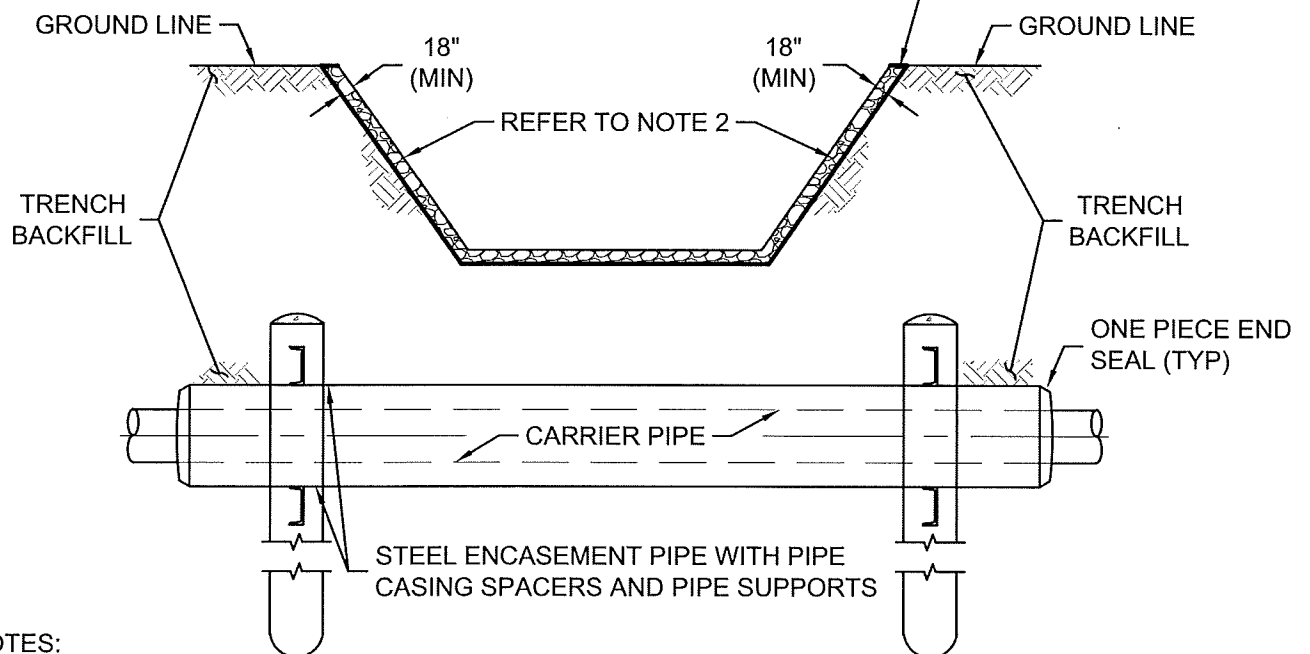
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PIPE SUPPORT



SIDE VIEW PIPE SUPPORT



NOTES:

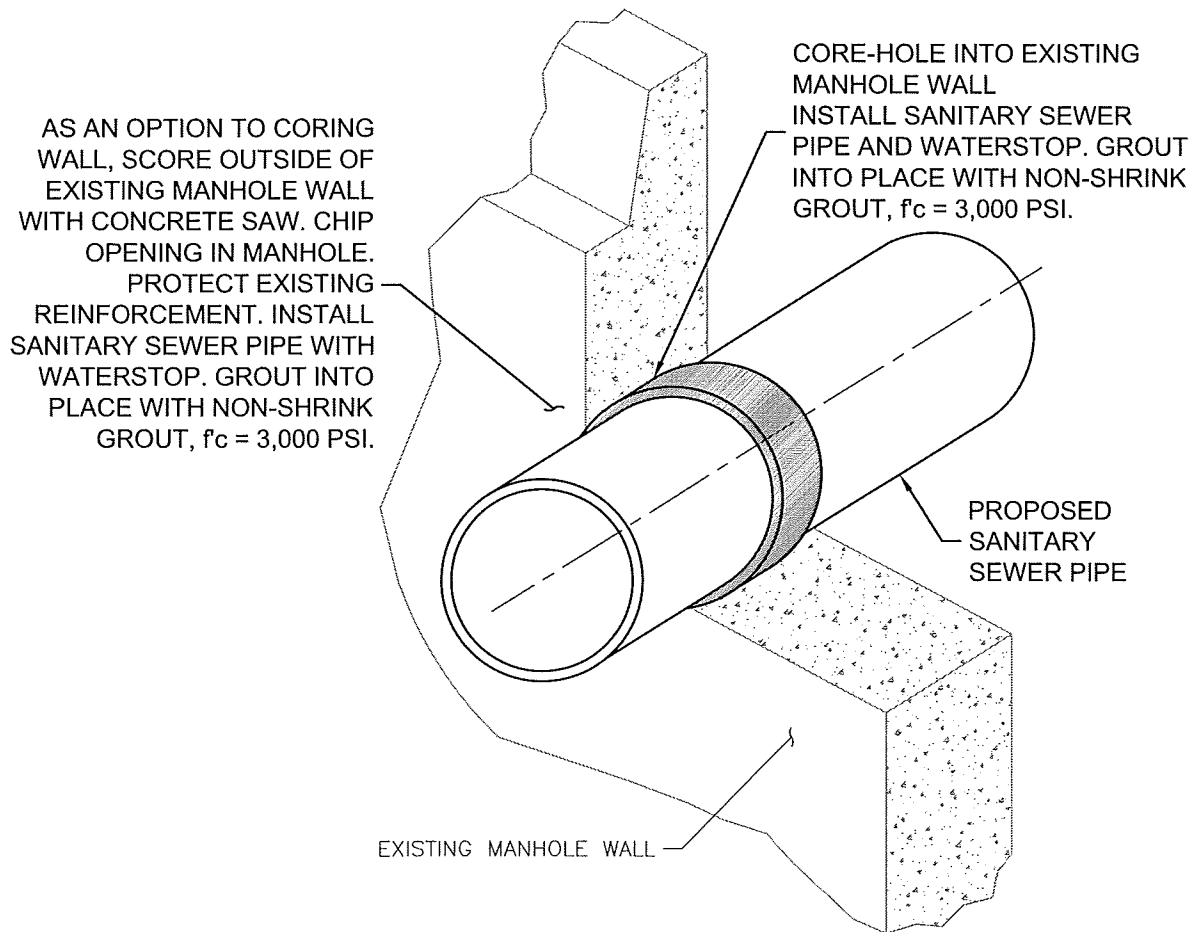
1. REFER TO PIPE CASING DETAILS FOR CASING SIZE/MATERIAL, SPACERS, AND END SEALS.
2. INSTALL MIRAFI 700X FILTER FABRIC, OR EQUIVALENT UNDER AND ON SIDES OF PROPOSED STONES. SECURE WITH 9" LONG U-PINS @ 4' OCEW.
3. ROCK RIPRAP - TxDOT ITEM 432, TYPE R MODIFIED TO HAVE ALL STONES BETWEEN 50 AND 150 LBS, AND AT LEAST 50% OF THE STONES GREATER THAN 100 LBS.
4. INSTALL RIPRAP TO OUTSIDE OF TRENCH WIDTH PLUS 3' EITHER SIDE OF TRENCH EXCAVATION.

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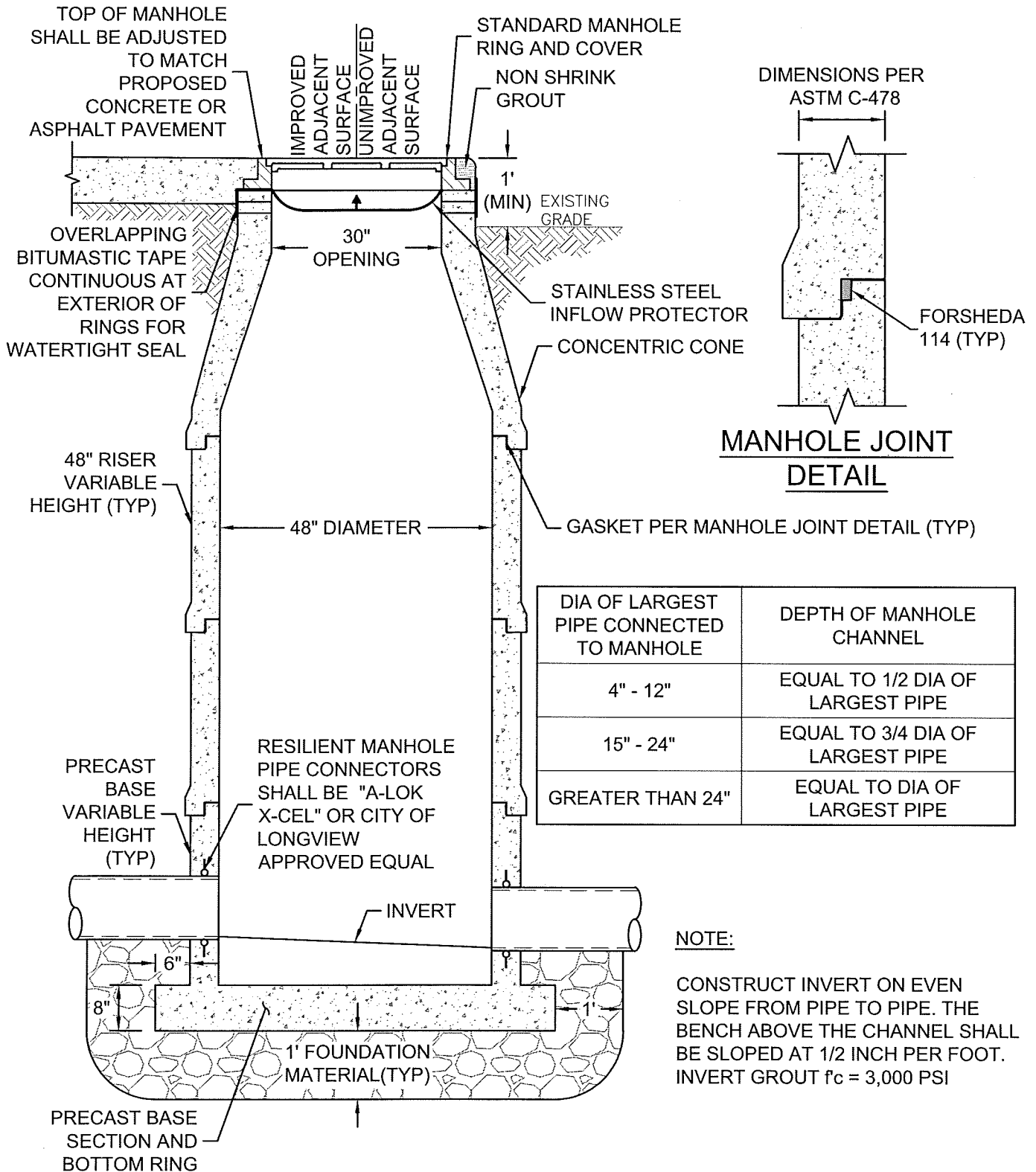
SEWER LINE
CREEK CROSSING



NOTES:

1. PIPE ENTRANCE SHALL BE ADJUSTED TO AVOID CONNECTION AT MANHOLE JOINTS.
2. USE SINGLE CLAMP WATERSTOP CONNECTOR FOR SMOOTH WALL PIPES. WATERSTOP SHALL BE A-LOK WATER-STOP CONNECTOR MEETING ASTM C-923, C-144, AND C-1478 OR CITY OF LONGVIEW APPROVED EQUAL.
3. IF MANHOLE REINFORCEMENT IS DAMAGED DURING SCORING OR CHIPPING OR IF OPENING IS MORE THAN 5" LARGER THAN PIPE OD, INSTALL #3 REBAR AT 6" OCEW PRIOR TO GROUTING WITH NON-SHRINK GROUT. REBAR INSTALLATION SHALL BE APPROVED BY CITY OF LONGVIEW.
4. IF CONNECTION TO THE MANHOLE IS BELOW EXISTING CONCRETE FILL, REMOVE EXISTING MANHOLE CONCRETE CHANNEL. AFTER CONNECTIONS ARE COMPLETE INSTALL NEW CONCRETE INVERT CHANNEL PER TCEQ 217.55.(k)(2) WITH CITY OF LONGVIEW APPROVED CONCRETE MIX ($f'_c = 3,000$ PSI).
5. IF CONNECTION TO MANHOLE IS GREATER THAN 24" ABOVE THE MANHOLE INVERT, A DROP CONNECTION SHALL BE INSTALLED. THE DROP CONNECTION SHALL BE MADE IN THE SAME MANNER AS DESCRIBED IN THESE NOTES FOR THE TIE - IN.

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SEWER

LATEST
REVISION:
3/21/2018

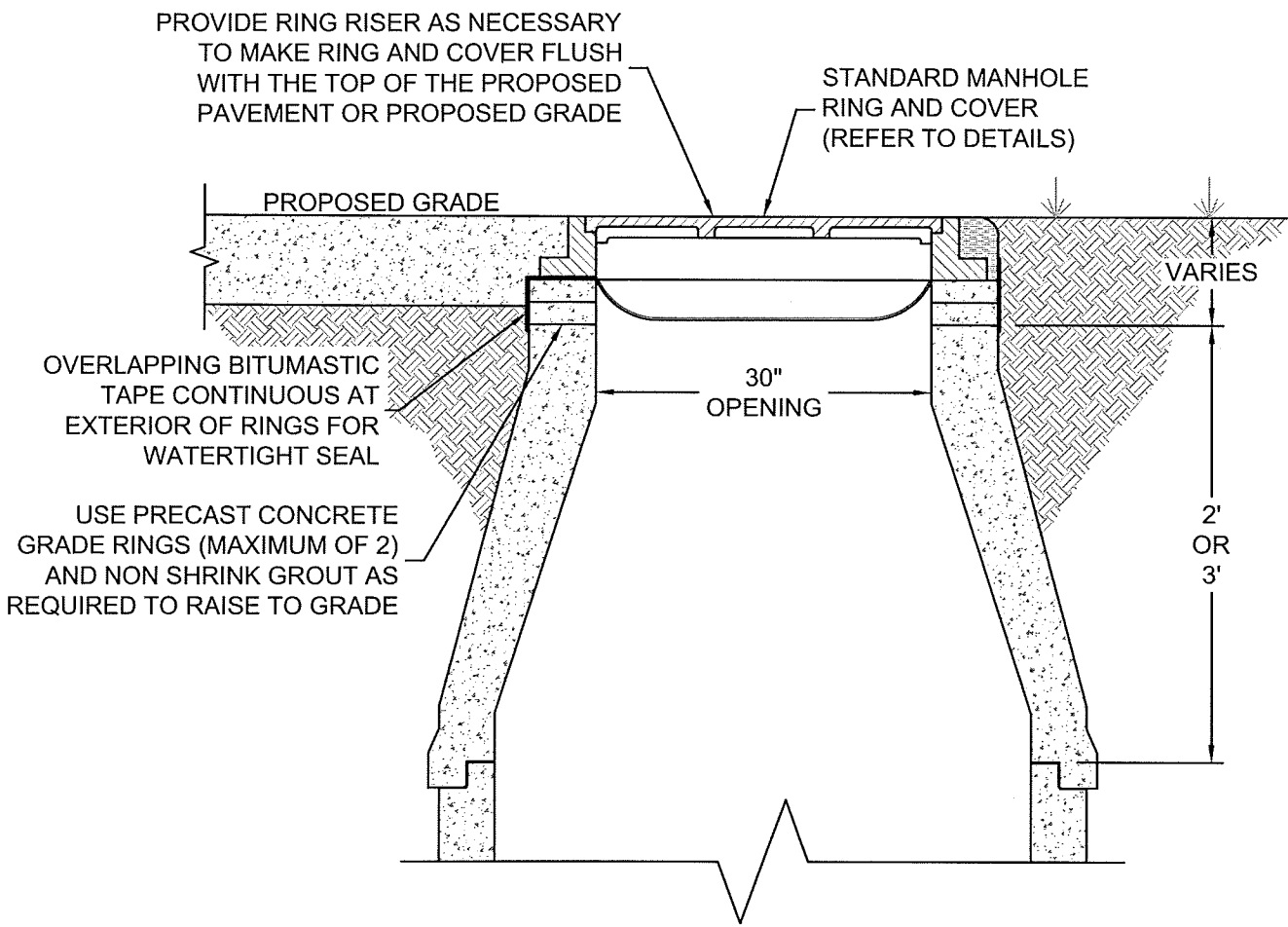
CITY OF LONGVIEW, TEXAS
STANDARD DETAILS

SANITARY SEWER MANHOLE

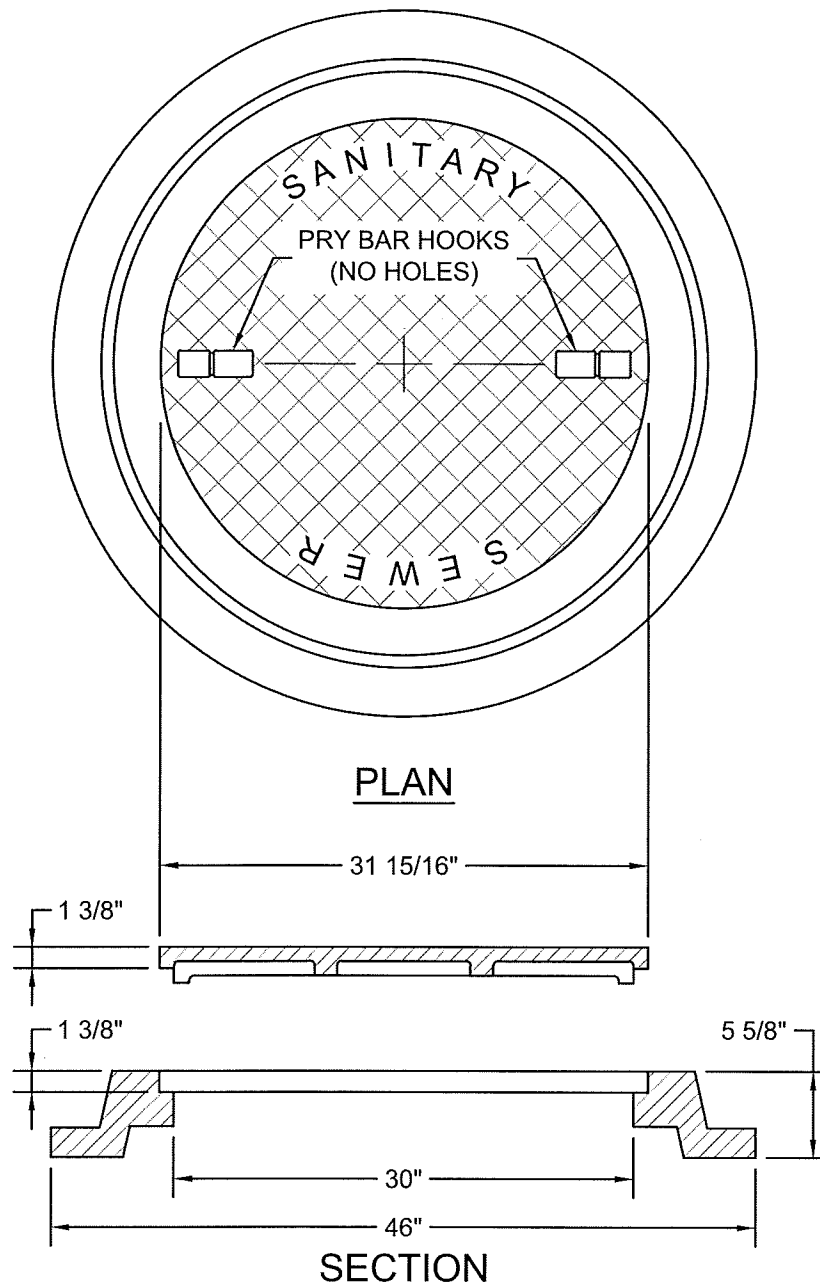
CONCRETE MANHOLE GENERAL NOTES:

1. PRECAST RISERS, CONES, FLOORS, GRADE RINGS, AND RINGS AND COVERS SHALL BE MANUFACTURED ACCORDING TO THE MOST RECENT ASTM C-478 SPECIFICATIONS.
2. ALL MANHOLE CONSTRUCTION SHALL BE WATERTIGHT. JOINTS SHALL BE RUBBER GASKET MANHOLE SECTIONS WITH PROFILE JOINT AND FORSHEDA 114 JOINT SEALS OR APPROVED EQUAL.
3. ANY ERECTION HOLES, STEP HOLES, OR OTHER HOLES THROUGH THE WALL OF THE MANHOLE SHALL BE COVERED WITH 3" NON-SHRINK CONCRETE GROUT.
4. GRADE RINGS SHALL BE FORMED WITH TONGUE AND GROOVE OF LUGS AND NOTCHES. GRADE RINGS SHALL BE SET IN MORTAR OR PLASTIC JOINT COMPOUND.
5. WHEN FIELD CONDITIONS REQUIRE HEIGHT TO BE ADJUSTED, ADDITIONAL GRADE RINGS MAY BE USED AS DIRECTED BY THE CITY OF LONGVIEW. INSTALL BITUMASTIC TAPE CONTINUOUS AT EXTERIOR OF GRADE RINGS AND COVER OVERLAPPING JOINTS FOR WATERTIGHT SEAL.
6. WHENEVER THE SUBGRADE FOR ANY MANHOLE OR DROP MANHOLE IS OF AN UNSATISFACTORY MATERIAL, SAME SHALL BE REMOVED AND REPLACED WITH A CRUSHED ROCK FOUNDATION AND COMPACTED TO THE SATISFACTION OF THE CITY OF LONGVIEW.
7. ALL CONCRETE ENCASEMENT IN ROCK SHALL BE POURED AGAINST THE FACE OF THE ROCK. NO PAYMENT WILL BE MADE FOR EXTRA CONCRETE USED IN OVER BREAKAGE OF THE DIMENSIONS AS SHOWN ON THE TYPICAL SECTION OF CONCRETE ENCASEMENT.
8. WHENEVER SEWER PIPE IS CONNECTED INTO THE WALL OF A MANHOLE WITHOUT A RESILIENT MANHOLE PIPE CONNECTOR THE FIRST JOINT OF THE SEWER PIPE SHALL BE LOCATED A MAXIMUM OF 12" OUTSIDE THE WALL OF THE MANHOLE. CONNECTION INTO A MANHOLE WITHOUT A RESILIENT CONNECTOR WILL BE USED ONLY WITH APPROVAL OF THE CITY OF LONGVIEW.
9. BACKFILL EXCAVATION WITH SELECT FILL COMPACTED IN 8" LAYERS TO 95% OF MAXIMUM DENSITY WITHIN 2% OF OPTIMUM MOISTURE AS DETERMINED BY ASTM D-698.

	SANITARY SEWER	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	SANITARY SEWER MANHOLE NOTES
	LATEST REVISION: 3/21/2018		



	SANITARY SEWER LATEST REVISION: 3/21/2018	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	SEWER MANHOLE FINISHED GRADE ADJUSTMENT
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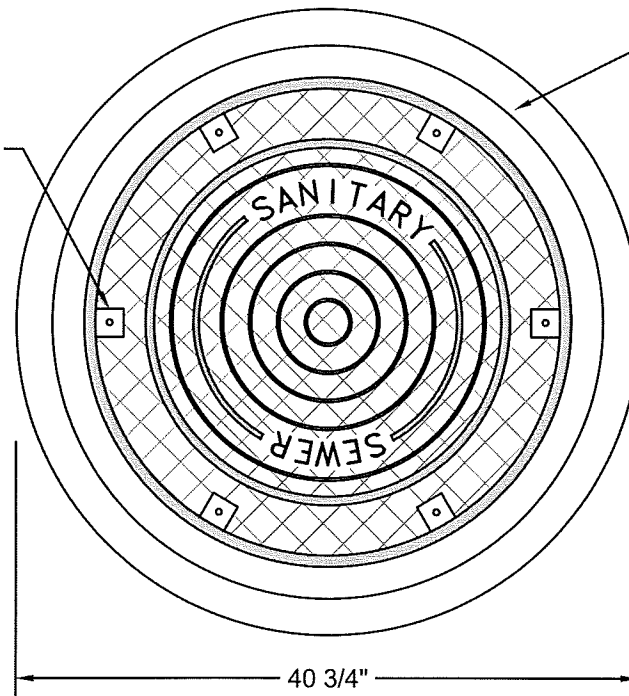


NOTE:

1. FRAME AND COVER TO BE MACHINED SURFACE CAST IRON NON-ROCKING TYPE, WITH NO HOLES.
2. ASTM A48, CLASS 30B CAST IRON CONSTRUCTION, MACHINED FLAT BEARING SURFACE, AND REMOVABLE.
3. LID DESIGN; LIVE LOAD RATING OF 20,000 PSI, SEALING GASKET, AND MOLDED WITH "SANITARY SEWER" MARKED ON LID.
4. THE RING AND LID SHALL WEIGH A MINIMUM OF 210 LBS.

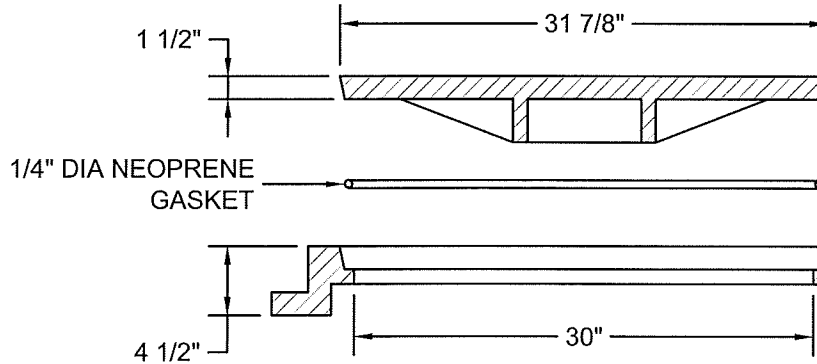
	SANITARY SEWER LATEST REVISION: 3/21/2018	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	STANDARD SEWER MANHOLE RING AND COVER
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1/2" - 13 x 1 3/4"
SS HX BOLTS WITH
STEEL AND RUBBER
WASHERS (TYP 6x)



PLAN

PROVIDE RING WITH A
MINIMUM OF 4 ANCHOR
BOLTS IF RING IS NOT CAST
IN CONCRETE TOP.
ANCHOR BOLTS SHALL BE
SS AND LONG ENOUGH TO
FIRMLY ANCHOR THE RING
TO THE TOP OF THE
MANHOLE (NOT GRADE
ADJUSTMENT RINGS)



SECTION

BOLT RING TO TOP OF
MANHOLE WITH SS
BOLTS IF NOT CAST
INTO CONCRETE

NOTES:

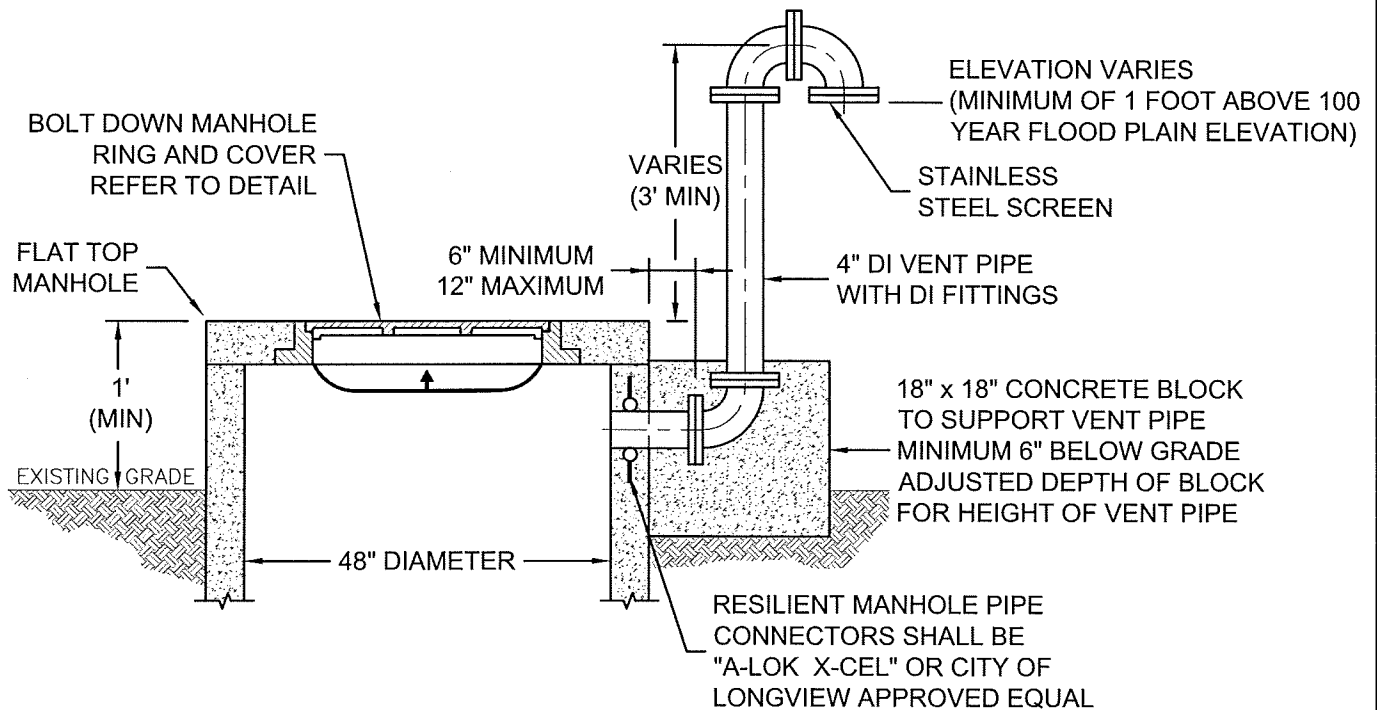
1. ASTM A48, CLASS 30B CAST IRON CONSTRUCTION, MACHINED FLAT BEARING SURFACE, REMOVABLE, WATERTIGHT LID WHERE REQUIRED BY THE CITY OF LONGVIEW.
2. LID DESIGN; LIVE LOAD RATING OF 20,000 PSI, SEALING GASKET, AND MOLDED WITH "SANITARY SEWER" ON THE LID.
3. THE RING AND LID SHALL WEIGH A MINIMUM OF 210 LBS.

SANITARY
SEWER

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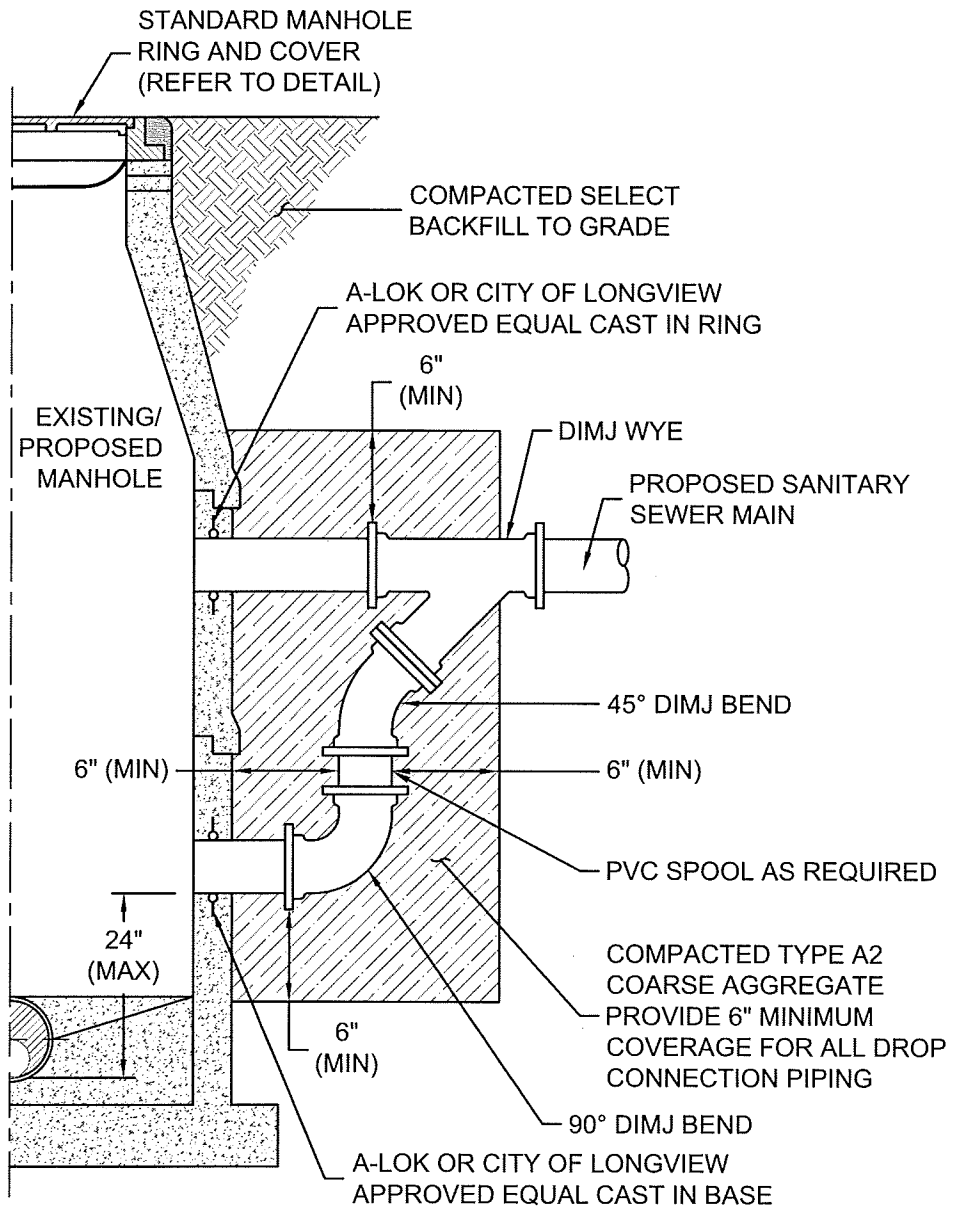
WATERTIGHT MANHOLE
RING AND COVER



NOTES:

1. VENT PIPE AND FITTINGS SHALL BE 4" DIAMETER DI WITH FLANGED CONNECTIONS.
2. EXTEND VENT TO ABOVE 100 YEAR FLOODPLAIN PER TCEQ REQUIREMENTS.
3. INSTALL BLIND FLANGE WITH 2" DIAMETER HOLE DRILLED FOR VENTING. INSTALL #16 SS MESH BETWEEN BLIND FLANGE AND 90 BEND.
4. LOCATE VENT AS HIGH AS POSSIBLE IN TOP OF MANHOLE SECTION. IF MANHOLE DIAMETER IS LARGE ENOUGH, OFFSET MANHOLE LOCATION AND MOUNT VENT IN TOP OF MANHOLE WITH PLAIN END BY FLANGE END WALL PIPE CAST INTO MANHOLE TOP.
5. INSTALL CONCRETE BLOCK TO SUPPORT VENT PIPE. EXTEND BLOCK A MINIMUM OF 6" BELOW GRADE AND BEAR ON COMPACTED MATERIAL.

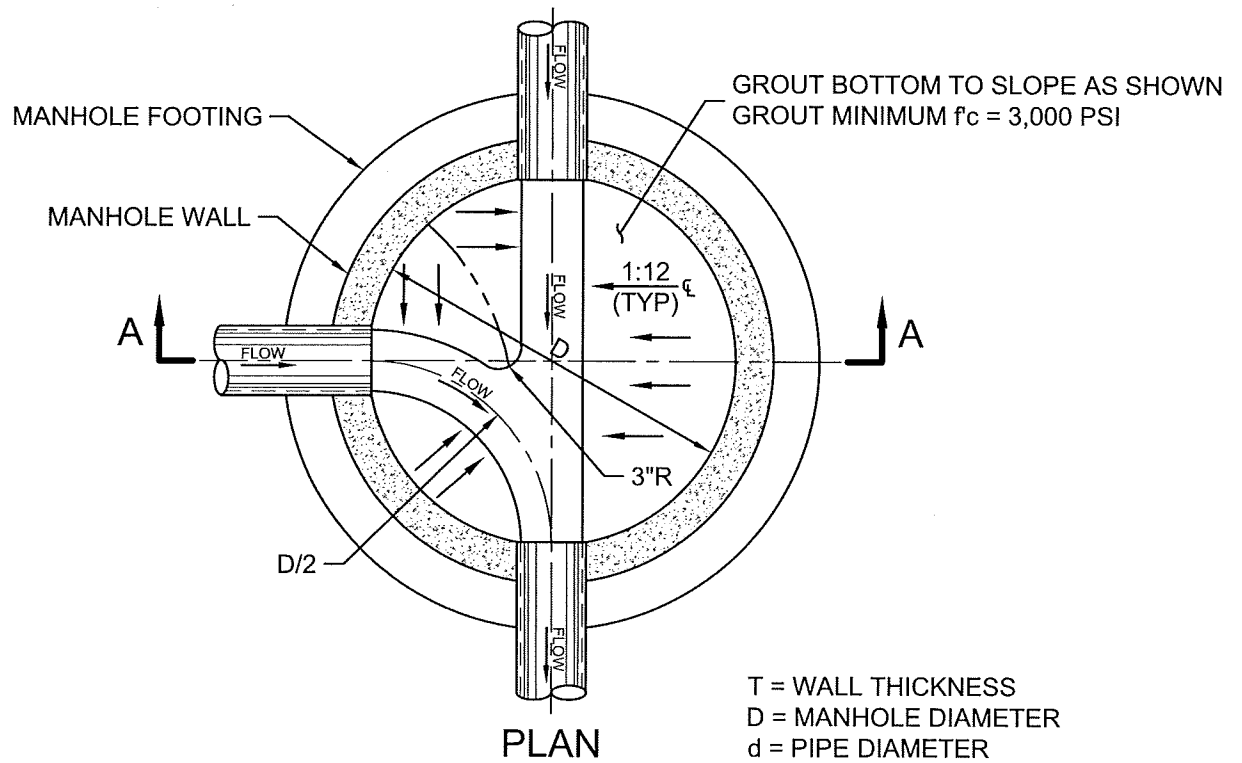
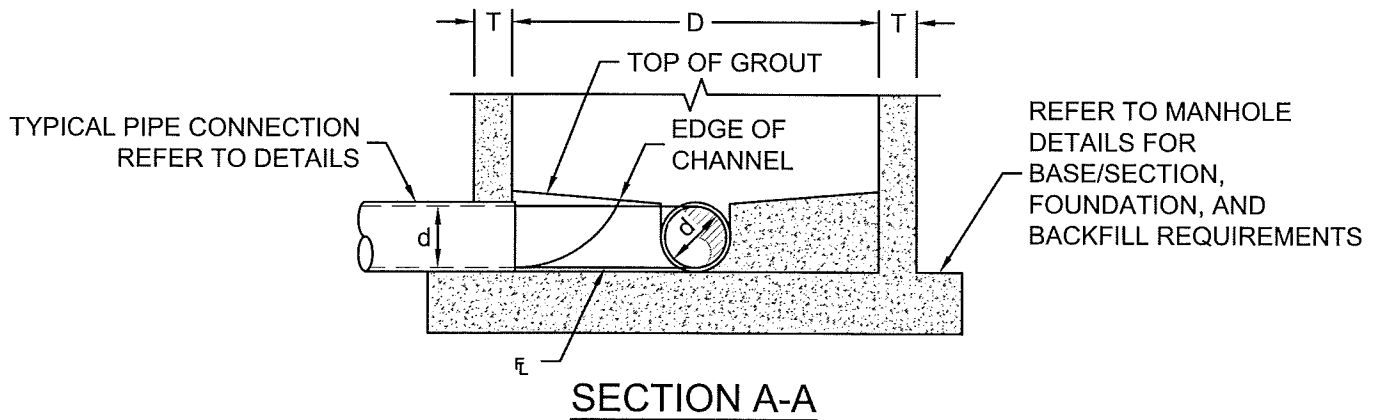
	SANITARY SEWER LATEST REVISION: 3/21/2018	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	SEWER MANHOLE VENT
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NOTE:

1. DROP MANHOLE CONNECTIONS SHALL BE CONSTRUCTED WHERE A CONNECTION PIPE ENTERS A MANHOLE MORE THAN 24" ABOVE THE MANHOLE INVERT.
2. ALL DI FITTINGS SHALL HAVE MJ RETAINING GLANDS.
3. DROP CONNECTION PIPE AND FITTINGS SHALL BE THE SAME DIAMETER AS THE SEWER MAIN.

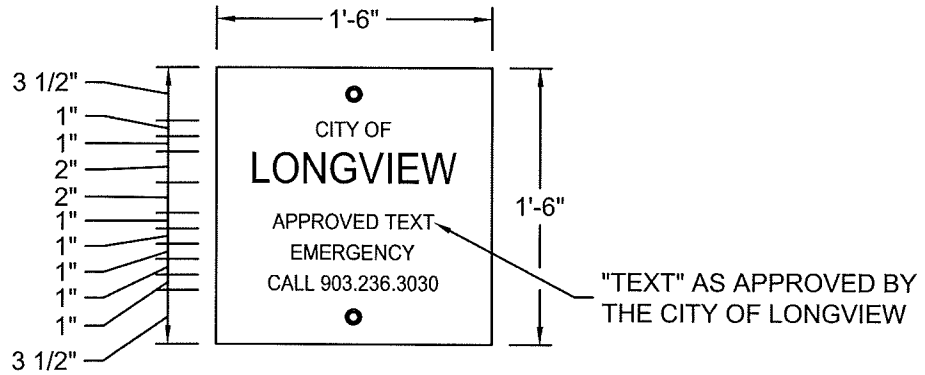
	SANITARY SEWER LATEST REVISION: 3/21/2018	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	SEWER DROP MANHOLE CONNECTION
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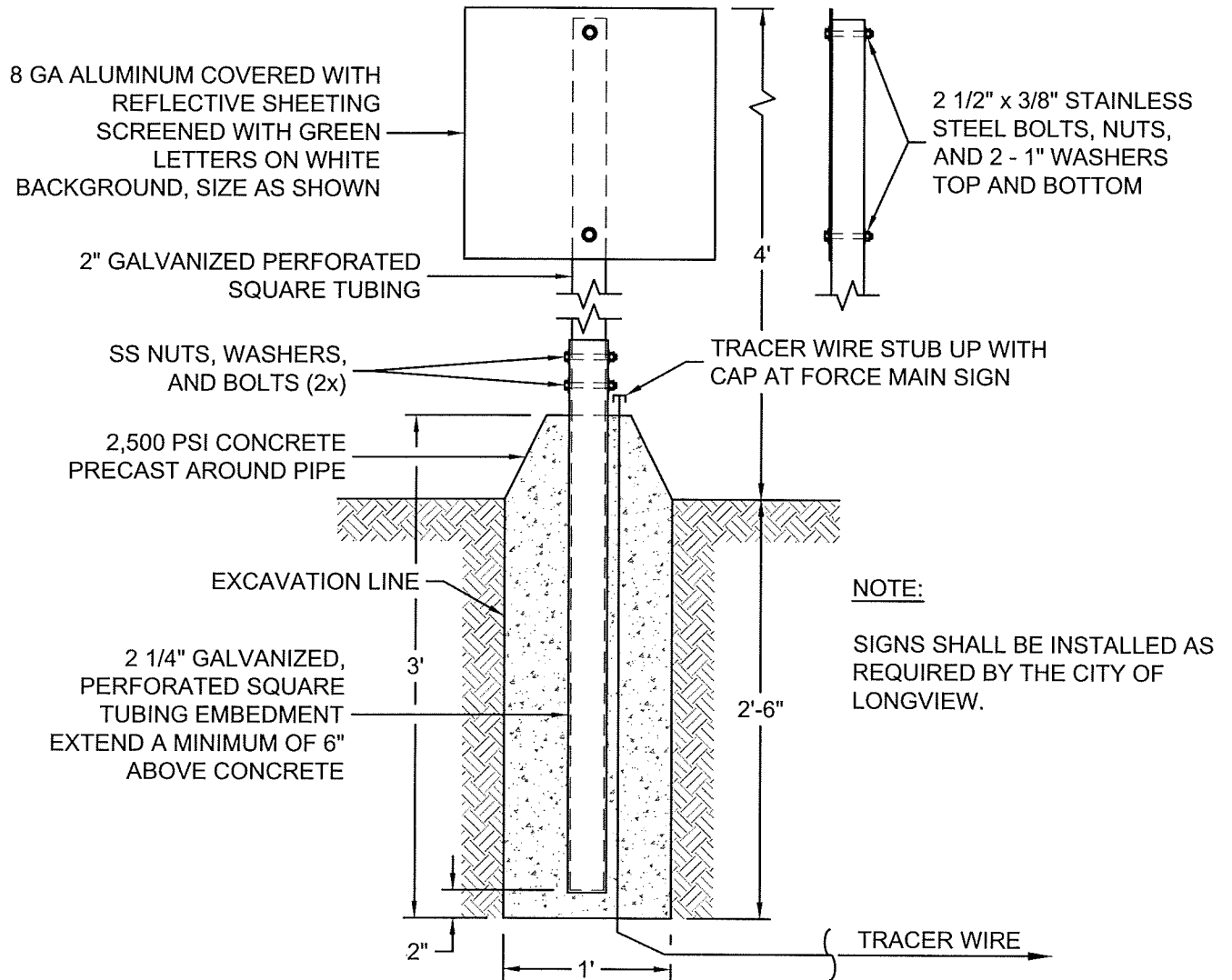
NOTES:

1. REFER TO SANITARY MANHOLE DETAIL FOR CHANNEL DEPTHS.
2. CONNECT INVERT ON EVEN SLOPE FROM INLET PIPE(S) TO OUTLET PIPE.
3. FOR CONNECTIONS TO EXISTING MANHOLES, REMOVE EXISTING INVERT IF NEW LINE PENETRATES MANHOLE BELOW EXISTING INVERT. INSTALL NEW INVERT AFTER CONNECTION IS COMPLETE.

	SANITARY SEWER LATEST REVISION: 3/21/2018	CITY OF LONGVIEW, TEXAS STANDARD DETAILS	SEWER MANHOLE INVERT
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MARKER SIGN LAYOUT



SANITARY
SEWER

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CITY OF LONGVIEW, TEXAS
STANDARD DETAILS

SIGN MARKER
DETAIL